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CLAIMS

1. (amended) A slotless permanent magnet rotary electric machinery, comprising a substantially cylindrical rotor incorporated with a permanent magnet, a stator iron core surrounding the rotor; and a coil provided between the rotor and stator core in a spaced relationship with respect to the rotor, characterized by that:

the coil comprises a plurality of turns which are shifted from one turn to another along the circumferential direction in a mutually overlapping manner; and

the coil turns are formed by a conductor having an elongated cross section, a long axis of the cross section extending in a radial direction,

wherein the conductor is provided with a rectangular cross section having a long side and short side, and the long side extends in a radial direction and wherein the rectangular cross section of the conductor is rounded at the four corners thereof.

15 2. (canceled).

3. (amended) A slotless permanent magnet rotary electric machinery according to claim 1, wherein the conductor consists of a Litz wire conductor.

20 4. (canceled)

5. A method of making a coil for a slotless permanent magnet rotary electric machinery, the coil including a plurality of turns of a flat conductor having a rectangular cross section including a long side and short side, the turns being formed

by winding the conductor in an edgewise fashion, comprising the steps of:

- wrapping a first wire having a circular cross section of a substantially same diameter as the length of the short side of the flat conductor and a second wire having a circular cross section of a larger diameter than the first wire around an
- 5 elongated flat bar in a spiral fashion in such a manner that the first and second wires alternate along the length of the flat bar while closely contacting each other as seen in a longitudinal sectional view of the flat bar;

removing the first wire from the flat bar;

- wrapping the flat conductor around the flat bar along a space created by
- 10 removing the first wire with the long side of the flat conductor oriented perpendicularly with respect to the axial line of the flat bar; and
- removing the second wire from the flat bar.

6. A method of making a coil according to claim 5, wherein the coil comprises
- 15 a pair of coil segments adapted to be located 180 degrees apart in electric phase angle when installed in the slotless permanent magnet rotary electric machinery and a connecting wire connecting the coil segments to each other; and
- the two coil segments are formed by wrapping the flat conductor in
- mutually opposite directions in the step of wrapping the flat conductor around the flat
- 20 bar.

7. A method of making a coil according to claim 5, wherein the conductor consists of a Litz wire conductor.

- 25 8. A method of making a coil according to claim 5, further comprising the step

of deforming the coil so that each turn is given with a circular or polygonal shape following the step of removing the second wire from the flat bar.

9. A method of making a coil according to claim 8, wherein the step of
- 5 deforming the coil comprises the steps of:
  - removing the flat conductor from the flat bar, and fitting the coil onto a second flat bar having a smaller width than the first flat bar;
  - placing a first pressure member and a second pressure member having mutually opposing ends of prescribed complementary shapes opposite to the
  - 10 corresponding opposite ends of the coil; and
    - moving the first and second pressure members toward each other along the surface of the second flat bar so as to pressurize the coil from the both ends with the first and second pressure members.